



Louisville Metro Air Pollution Control District
701 West Ormsby Avenue, Suite 303
Louisville, Kentucky 40203-3137



May 26, 2020

Federally Enforceable District-Origin Operating Permit (FEDOOP) Statement of Basis

Source: MISA Metal Fabricating, Inc
7101 International Dr.
Louisville, KY 40258

Owner: MISA Metal Fabricating, Inc
7101 International Dr.
Louisville, KY 40258

Application Documents: See Table I-7
Permitting Engineer: Rick Williams
Plant ID: 1639

SIC: 3441

Draft Permit: 03/10/2020
Permit Number: O-1639-20-F
NAICS: 332312

Introduction:

This permit will be issued pursuant to District Regulation 2.17- Federally Enforceable District Origin Operating Permits. Its purpose is to limit the plant wide potential emission rates from this source to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements.

This is a renewal of the previous operating permit, incorporating subsequent construction permits C-1639-1001-18-F (May 24, 2019) and C-1629-1002-19-F (January 9, 2019) and deleting references to greenhouse gasses in General Condition G10.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO₂), carbon monoxide (CO), particulate matter less than 10 microns (PM₁₀), and particulate matter less than 2.5 microns (PM_{2.5}). Jefferson County is classified as a nonattainment area for ozone (O₃). This facility is located in the portion of Jefferson County that is an attainment area for sulfur dioxide (SO₂).

Permit Application Type:

☐ Initial issuance

Permit Revision

☒ Permit renewal

☐ Administrative

☐ Minor

☐ Significant

Compliance Summary:

☒ Compliance certification signed

☐ Compliance schedule included

☐ Source is out of compliance

☒ Source is operating in compliance

I Source Information**1. Product Description:**

The company produces a variety of products fabricated from steel and other metals.

2. Process Description:

The source is a steel processing operation, providing oxy-fuel, plasma, laser cutting, band-sawing, welding, and painting.

3. Site Determination:

There are no other facilities that are contiguous or adjacent and under common control.

4. Emission Unit Summary:

Emission Unit	Equipment Description
U1	Steel Cutting Area
U2	Spray Booth Area
U3	Shot Blast Area
IA-U4	Cold Solvent Wash
U5	Welding and Grinding Operation
IA	Insignificant Activities

5. Fugitive Sources:

All steel-cutting and welding operations are fugitive. Some of these operations are controlled but the emission from the control device is vented into the building rather than being exhausted through a stack.

6. Permit Revisions:

Permit No.	Public Notice Date	Issue Date	Change Type	Description/Scope
27914-14-F	06/26/2014	08/06/2014	Initial	Entire permit (FEDOOP)
27914-14-F (R1)	N/A	08/30/2016	Admin	District Address update; E1 removed, Control device efficiencies updated in U-001, U-003, and U-005 along with requirements, added New Oxy Fuel cutting table to IA.
O-1639-20-F	03/04/2020 03/10/2020	05/26/2020	Renewal	Permit renewal. Incorporate construction permits C-1639-1001-18-F and C-1639-1002-19-F and remove references to greenhouse gasses in General Condition G10.

7. Construction Permit History:

Permit No.	Effective Date	Description
C-1639-1001-18-F	05/24/2018	Automated equipment for grinding steel parts cut from raw plate and associated control equipment.
C-1639-1002-19-F	01/09/2019	Modification of the Koike Aronson VGM-5000 oxyfuel cutting table, E-02 Modification of the Koike Aronson HPR260XD plasma cutter, E-23 Installation of an Armada 3015NT laser cutter, E25, and associated dust collector, C-12

8. Application and Related Documents

Document Number	Date	Description
oB 22788 22787 22786	06/03/2019	Application
oB 117466	9/13/2019	Follow-up information from plant visit
oB 117467	9/13/2019	Additional follow-up information

Document Number	Date	Description
oB 119289	09/26/2019	Clarification of paint booth operation
oB 123273	10/30/2019	Request for review of pre-public-comment draft permit
oB 124655	11/18/2019	Company comments on draft permit
oB 125322	12/03/2019	APCD response to company comments on draft permit
oB 127403	01/02/2020	Company comments regarding calculation methodology and dust control filter efficiency
oB 127866	01/13/2020	APCD response to company calculation methodology and control efficiency comments
oB 128268	01/16/2020	Company followup to calculation methodology comments
oB 128513	01/21/2020	Additional APCD questions re metal grinding emission factors
oB 130178	01/31/2020	Justification of U5 grinder emission factors.
oB 133371	03/02/2020	Company inquiry regarding draft permit status
oB 133652 & 133660	03/03/2020	Public notice documents
oB 134334 & 134335	03/09/2020	Restart public notice documents
oB 137007 & 137095	04/10/2020 & 04/13/2020	Company comments received during public notice
oB 137386	04/14/2020	District request for clarification of one comment regarding Global Drive facility
oB 137456	04/14/2020	District request for clarification of equipment
oB 137600	04/15/2020	Company clarification of Global Drive facility ownership, responsive to #137386
oB 137629	04/16/2020	Company identification of equipment, responsive to #137456
oB 138589	04/22/2020	Follow-up on application of fallout factor for plasma cutting equipment

9. Emission Summary.

Pollutant (ton/yr)	CO	NO _x	SO ₂	PM ₁₀	VOC	Total HAP	Single HAP
Potential Emissions	3.7	22.8	0.13	1742	21.8	54.3	27.7
Major source trigger (based on PTE)	N	N	N	Y	N	Y	Y

10. Applicable Requirements

- | | | |
|------------------------------------|---|---|
| <input type="checkbox"/> 40 CFR 60 | <input checked="" type="checkbox"/> SIP | <input checked="" type="checkbox"/> 40 CFR 63 |
| <input type="checkbox"/> 40 CFR 61 | <input checked="" type="checkbox"/> District Origin | <input type="checkbox"/> Other |

11. Referenced Federal Regulations:

40 CFR 63, subpart XXXXXX – *National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories*

12. Non-Applicable Regulations:¹

Regulation	Title	Reason for Non-applicability
40 CFR subpart JJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	Does not apply to non-process natural gas-combustion

II Regulatory Analysis**1. Stratospheric Ozone Protection Requirements:**

Title VI of the CAAA regulates ozone depleting substances and requires a phase-out of their use. This rule applies to any facility that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. MISA Metal Fabrication does not manufacture, sell, or distribute any of the listed chemicals. The source's use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.

2. Basis of Regulation Applicability**a. Applicable Regulations**

Regulation	Title	Basis
2.17	Federally Enforceable District Origin Operating Permits	Applies to potentially-major sources who choose to take emission limits to avoid being subject to Regulation 2.16.
5.00	Definitions	Sets forth the definition of and requirements for a source exempt from APCD STAR regulations

¹ These regulations were referenced in the permit, but the source is exempt from the regulations or they are otherwise inapplicable.

Regulation	Title	Basis
5.02	Adoption and Incorporation by Reference of National Emission Standards for Hazardous Air Pollutants	Incorporates the referenced federal regulations as part of the SIP and names APCD as the designated Administrator.
6.18	Standards of Performance for Solvent Metal Cleaning Equipment	Applies to all cold cleaners that use VOCs to remove soluble impurities from metal surfaces.
7.08	Standards of Performance for New Process Operations	Applies to all new (later than Sept 1, 1976) process operations not regulated by any other Chapter 7 regulation.
7.59	Standard of Performance for New Miscellaneous Metal Parts and Products Surface Coating Operations	Applies to any coating line that applies coatings to a metal substrate and not otherwise regulated.
40 CFR 63, Subpart XXXXXX	National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories	Applies to an area source engaged in operations of an identified source category. Limits emissions of certain metal HAPs from such sources.

b. Plantwide

MISA Metal Fabrication is potentially major for PM₁₀, total HAPs and Single HAP (manganese). Regulation 2.17 – *Federally Enforceable District Origin Operating Permits* establishes requirements to limit the plant wide potential emission rates to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements. The source requested limits of less than 25 tons per year for PM₁₀, less than 12.5 tons per year for total HAPs and less than 5 tons per year for any single HAP, to be classified as a synthetic minor (FEDDOOP) source.

Regulations 5.00 5.20, 5.21, and 5.23 (STAR Program) establish requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards. MISA Metal Fabrication has requested emission limits of less than 25 tons per year for all regulated air pollutants, less than 12.5 tons/year for total HAPs and less than 5 tons per year for each individual HAP to be considered exempt from local TAC (STAR) regulations, as defined by Regulation 5.00, section 1.13.5.

Regulation 2.17, section 5.2, requires monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a

minimum of 5 years and make the records readily available to the district upon request.

Regulation 2.17, section 7.2, requires stationary sources for which a FEDOOP is issued to submit an Annual Compliance Certification by April 15, of the following calendar year. In addition, as required by Regulation 2.17, section 5.2, the source shall submit regular reports to show compliance with the permit. Compliance reports and compliance certifications shall be signed by a responsible official and shall include a certification statement per Regulation 2.1. The compliance reports are due within 60 days of the end of the reporting period:

<u>Reporting Period</u>	<u>Report Due Date</u>
January 1 - June 30	August 29
July 1 - December 31	March 1 of the following year

c. Emission Unit U1 – Steel Cutting Area

EP	Description	Applicable Regulations
E-02	Oxy-Fuel cutting table: Koike-Aronson VGX5000, Cutting rate 12.5 in/min Originally installed 1998, modified 2018	7.08 40 CFR 63 XXXXXX
E-03	Oxy-Fuel cutting table: Koike-Aronson VGM3100, Cutting rate 12.5 in/min	
E-04	Oxy-Fuel cutting table: Koike-Aronson VGM2500, Cutting rate 12.5 in/min	
E-05	Oxy-Fuel cutting table: Koike-Aronson IK1500, Cutting rate 15 in/min	
E-06	Plasma arc bevel cutter with water table: Koike-Aronson VGM2500, Cutting rate 20 in/min	
E-07	Laser cutting table with fume control: Armada FO3015NT, Cutting rate 20 in/min	
E-08	Laser cutting table with fume control: Armada FO3015NT, Cutting rate 20 in/min	
E-09	Laser cutting table with fume control: Armada FO3015NT, Cutting rate 20 in/min	
E-19	Laser cutting table with fume control: Armada FO3015NT, Cutting rate 20 in/min	

EP	Description	Applicable Regulations
E-15	Robot plasma cutter: Panasonic GII-1400, Cutting rate 20 in/min	7.08 40 CFR 63 XXXXXX
E-24	Oxy-Fuel cutting table Koike Aronson VGM3100 Cutting rate 20 in/min	
E-25	Laser cutting table Armada, model: 3015NT Capacity: 20 in/min	

i. Standards

(1) HAP

- (a) The federal regulation (40 CFR subpart XXXXXX) specified the management practices required to minimize emission of the regulated metal HAPs.

(2) Opacity

- (a) Regulation 7.08 specifies that the maximum allowable opacity from PM emissions be less than 20% at any time.

(3) PM/PM₁₀

- (a) Regulation 7.08 sets the PM emission standard for each piece of equipment based on the material throughput.

ii. Monitoring and Recordkeeping

(1) HAP

- (a) 40 CFR 63, subpart XXXXXX lists specific visual monitoring of fugitive emissions as a surrogate measure of HAP emissions.
- (b) This regulation also specifies the records that must be kept to provide evidence that the visual monitoring has been properly performed.

iii. Reporting

(1) HAP

- (a) 40 CFR 63, subpart XXXXXX specifies the annual reporting that is required to certify the results of the required visual monitoring of fugitive emissions.

d. Emission Unit U2 – Spray Booth Area

EP	Description	Applicable Regulations
E-10	Spray booth: Global Finishing Systems IFPX-886	7.08, 7.59 40 CFR 63, Subpart XXXXXX
E-11	Spray booth drying enclosure: Dri-Quick 32-BR60-1500C electric oven	7.08, 7.59

i. Standards

- (1) HAP
 - (a) The federal regulation (40 CFR subpart XXXXXX) limits the content of metal HAPs in coating materials.
- (2) Opacity
 - (a) Regulation 7.08 specifies that the maximum allowable opacity from PM emissions be less than 20% at any time.
- (3) PM/PM₁₀
 - (a) Regulation 7.08 sets the PM emission standard for each piece of equipment based on the material throughput.
- (4) VOC
 - (a) Regulation 7.59 provides the option to either limit total VOC emissions from this equipment to less than 5 tons per year or limit the maximum VOC content of the coating materials.

ii. Monitoring and Recordkeeping

- (1) HAP
 - (a) 40 CFR 63, subpart XXXXXX requires that MSDS of each product be kept to demonstrate compliance with the metal HAP limits.

e. Emission Unit U3 – Shot Blast Area

EP	Description	Applicable Regulations
E-12	Rotary Shot Blast w/Dust Collector: Pangborn; ES2019-5030123; Capacity: 56,000 lb/hr	7.08, 40 CFR 63, Subpart XXXXXX
E-14	Rotary Shot Blast w/Dust Collector Pangborn; ES2019-5030123; Capacity: 56,000 lb/hr	

i. Standards**(1) HAP**

- (a) The federal regulation (40 CFR subpart XXXXXX) specified the management practices required to minimize emission of the regulated metal HAPs.

(2) Opacity

- (a) Regulation 7.08 specifies that the maximum allowable opacity from PM emissions be less than 20% at any time.

(3) PM/PM₁₀

- (a) Regulation 7.08 sets the PM emission standard for each piece of equipment based on the material throughput.

ii. Monitoring and Recordkeeping**(1) HAP**

- (a) 40 CFR 63, subpart XXXXXX lists specific visual monitoring of fugitive emissions as a surrogate measure of HAP emissions.
- (b) This regulation also specifies the records that must be kept to provide evidence that the visual monitoring has been properly performed.

iii. Reporting**(1) HAP**

- (a) 40 CFR 63, subpart XXXXXX specifies the annual reporting that is required to certify the results of the required visual monitoring of fugitive emissions.

f. Emission Unit IA-U4 – Cold Solvent Wash

EP	Description	Applicable Regulations
E-13	Parts Washer, cold solvent, with secondary reservoir (Maintenance Area); capacity: 55 gallons	6.18
E-17	Parts Washer, cold solvent, with secondary reservoir (Paint Booth Area); capacity: 15 gallons	6.18

i. Standards**(1) VOC**

- (a) Regulation 6.18 sets work practice rules and material content rules for all cold solvent-based metal cleaning equipment

g. Emission Unit U5 – Grinding and Welding Operation

EP	Description	Applicable Regulations
E-16A	ARKU “Edge Breaker 4000” robotic grinding station	7.08 40 CFR 63, Subpart XXXXXX
E-18	Grind Line (2 Stations) Custom-built	
E-20	Manual Repair grind (welding)	
E-21	Hand welding (9 stations) Capacity: 5 lb/hr	
E-22	Robot Welder; Panasonic: GII-1600; Capacity: 7 lb/hr	
E-23	Robot Welder; Panasonic: WG-1400; Capacity: 5 lb/hr	

i. Standards**(1) HAP**

- (a) The federal regulation specified the management practices required to minimize emission of the regulated metal HAPs.

(2) Opacity

- (a) Regulation 7.08 specifies that the maximum allowable opacity from PM emissions be less than 20% at any time.

(3) PM/PM₁₀

- (a) Regulation 7.08 sets the PM emission standard for each piece of equipment based on the material throughput.

ii. Monitoring and Recordkeeping

(1) HAP

- (a) 40 CFR 63, subpart XXXXXX lists specific visual monitoring of fugitive emissions as a surrogate measure of HAP emissions.
- (b) This regulation also specifies the records that must be kept to provide evidence that the visual monitoring has been properly performed.

iii. Reporting

(1) HAP

- (a) 40 CFR 63, subpart XXXXXX specifies the annual reporting that is required to certify the results of the required visual monitoring of fugitive emissions.

III Other Requirements

1. Temporary Sources:

The source did not request to operate any temporary facilities.

2. Short Term Activities:

The source did not report any short term activities.

3. Emissions Trading:

The source is not subject to emission trading.

4. Alternative Operating Scenarios:

The source did not request any alternative operating scenarios.

5. Compliance History:

There are no records of any violations of the terms of the present or prior construction or operating permits.

6. Calculation Methodology or Other Approved Method:

Where specific emission factors or control efficiencies are referred to in the calculation methodologies shown below, MISA Metal Fabricating may substitute the values obtained as part of a District-approved stack test or District-approved

manufacturer's guarantee for the affected equipment. If a guarantee is no longer valid for any reason MISA Metal Fabricating must use the District default value currently accepted for that filter type. MISA may, at any time, conduct stack tests to demonstrate control efficiencies that may be used in preference to what is shown here.

EMISSION UNIT U-1

E-02, E-03, E-04, E-05, E-24, E-25 at all times

E-06, E-07, E-08, E-09, E-19, E-15 when operating uncontrolled

For a single cutting job:

$$PM = t \times k \times v \times \delta \times h \times 60 \times c \times T \times (1-\eta)$$

PM = pounds of PM emission in period
 t = steel thickness, inches
 k = kerf width, inches (table 1)
 v = cutting speed, inches/minute
 δ = material density, lb/in³
 h = operating time, hours
 c = number of cutting heads operating
 T = cutting technique factor (table 2)
 η = control efficiency (table 3)

Annual PM emissions are the sum of the emissions for each job.

E-06, E-07, E-08, E-09, E-19, E-15 when operating controlled

$$PM = 2.86 \times 10^{-7} \times \text{cfm} \times 60 \times H$$

PM = pounds of PM emission in period
 cfm = fan rated cubic feet per minute
 H = hours of operation of the control device
 2.86×10^{-7} = guaranteed rate (0.002 grain/cfm) ÷ 7000 grains/lb

Table 1 Kerf width for a given material thickness										
Plate thickness (inch)	0.125	0.25	0.375	0.5	0.75	1.0	1.5	2.0	2.5	3.0
Kerf width (inch)	0.04	0.05	0.06	0.07	0.08	0.08	0.09	0.11	0.12	0.12

Table 2 Cutting technique factor			
Material	Dry	Semi-Dry (water ~ 2" under plate)	Wet (burner ~ 3" below water surface)
Aluminum	5	0.5	0.05
Steel	5	0.5	0.05
Stainless steel <1.5 inches	7	0.7	0.07
Stainless steel ≥1.5 inches	1	0.1	0.01
Brass	5	0.5	0.05

Table 3 Control device efficiency						
Emission Point	E-02	E-03	E-04	E-05	E-24	E-25
Control	0	0	0	0	0	98% [†]
Emission Point	E-06	E-07	E-08	E-09	E-19	E-15
Uncontrolled	0	0	0	0	0	0
Controlled	2.86 × 10 ⁻⁷ lb/scfm* for entire time of dust control fan operation (not just the duration of cutting operation)					

[†] This is the District-default efficiency for this filter type. No manufacturer's guarantee has been provided for this control device.

* This is the manufacture's guaranteed efficiency. This may be used while the conditions of the guarantee are met.

HAP emissions

HAP emissions must be calculated based on the reported HAP concentrations for each lot of plate cut. Therefore, PM emission based on the mill specification sheet provided with the steel must be tracked:

$$HAP_j(\text{lb/year}) = \sum_i PM_i HAP_j(\% \text{ composition})_i$$

i = mill specification sheet for plate
 j = the HAP being considered

That is, the annual emissions for any HAP is the sum of the total PM emissions for each plate, i , times the percentage of HAP j (e.g. chromium, nickel, etc.) listed in the mill specification sheet for that plate.

When chromium is one of the HAPs emitted, it is assumed that of the total Cr emissions, 96% is Cr⁺³ and 4% is Cr⁺⁶ unless other data is provided to and approved by APCD.

E-02, E-03, E-04, E-05, E-06, E-07, E-08, E-09, E-15, E-19, E-24, E-25 cutting processes

$$NO_x = 1.54 \times 10^{-4} \times v \times 60 \times h$$

NO_x = pounds of NO_x emission in period

v = cutting speed, inches/minute

h = operating time, hours

1.54 × 10⁻⁴ lb/inch = NO_x emission factor [B. Broman, *et al*, The Swedish Institute of Production Engineering Research, *Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel*, ITW Document 1E-174-93, March 1994]

Combustion Emissions
E-02, E-03, E-04, E-05, E-24 fuel combustion

Emission factors for propane combustion (AP42, table 1.5-1)						
Pollutant	NO _x	PM	SO ₂ ²	VOC	CO	HAP
lb/10 ³ gallon	13	0.7	1.03	1.0	7.5	N/D

Emission Source		Description	Pollutant	Emission factor	Source	Control Effic.
Unit	Point					
U-2	E-10	Spray booth	PM HAP	Mass balance method Spray gun transfer efficiency = 65%		90% ³
	E-11	Drying enclosure	VOC	Mass balance method		N/A
U-3	E-12	Pangborn rotary shot blast	PM	0.004 lb _{PM} /lb _{abrasive}	Note a	98% ⁴
	E-13		PM ₁₀	0.86 lb _{PM10} /lb _{PM}		
			HAP	Note b	MSDS	
U-4 IA	E13 E17	Cold solvent parts washers: Maintenance area and Paint Booth area	VOC	Calculation, Note c	AP-42	N/A
			HAP	Note d	MSDS	N/A
U-5	E-16A E-18 E-20	Arku "Edge Breaker 4000" Grind line (2 stations) Repair grind	PM	0.0001.219×10 ⁻⁴ lb/lb _{thruput} ×(1-0.70)	Note e	Notes f, g
			PM ₁₀	PM/2		
			HAP	PM×%HAP	eng. est.	
	E-21	Hand welding (9 stations)	PM	0.0052 lb/lb _{electrode}	AP-42 §12.19 arc welding (E70S) MSDS	N/A
	E-22	Robot welder- Panasonic GH-1600	PM ₁₀ HAP	= PM [lb/lb _{electrode}]		
	E-23	Robot welder- Panasonic WG-1400	Mn Cr Ni	3.18×10 ⁻⁴ 1.0×10 ^{-6.5} 1.0×10 ⁻⁶		

² From Gaseous Fuel Emission Factors, SBCAPCD, 1/31/1997 [<https://www.ourair.org/wp-content/uploads/sulfur01.pdf>], where E_{so2} = 0.013 lb/MMBtu and AP42, table 1.5-1, footnote a, where HHV_{propane} = 91.5×10⁶ Btu/(10³ gal). Then, 0.0113 × 91.5×10⁶ = 1.03 lb_{SO2} / 10³gal.

³ APCD default control efficiency for flat panel filters.

⁴ APCD default control efficiency for cartridge filters.

⁵ Emissions are 100% trivalent chromium.

Emission Source		Description	Pollutant	Emission factor	Source	Control Effic.
Unit	Point					
IA	IA	All natural gas combustion	NOx	100 lb/mmcf	AP42, 1.4-1	N/A
			CO	84 lb/mmcf		
			SO ₂	0.6 lb/mmcf		
			VOC	5.5 lb/mmcf		
			HAP _{total}	1.89 lb/mmcf		
			PM	0.52 lb/mmcf	EPA NEI guidance	
PM ₁₀	0.52 lb/mmcf					

Notes:

- a. *Confined Abrasive Blasting Cabinets/Rooms*, STAPPA/ALAPCO, chapter 3.
- b. HAP is determined by multiplying the uncontrolled PM emission by the percentage of HAP in the material being cut. The typical steels in use here have the following HAP content: Manganese - 1.3%; Chromium - 0.25%; Nickel - 0.20%.
- c. This is a fixed rate, based on the physical characteristics of the parts washers, equal to the sum of the three factors described in following paragraphs ii – iv. The annual emission rate, based on a typical petroleum-based low vapor pressure solvent containing 100% petroleum distillates, is 0.44 ton/year for each parts washer.
 - i. **Open top evaporation rate.** Open surface evaporations can be calculated using the following equation:

$$q = A \cdot \left(\frac{Pa \cdot Mw}{R \cdot T} \right) \left(\frac{Di}{Z2 - Z1} \right) \ln \left(\frac{1}{1 - Y_{ci}} \right) \cdot EM$$
 - ii. **Evaporation loss.** This type of parts washer cannot operate 8,760 hours a year. It has been determined that 10% operating time would be a conservative assumption for these cold solvent parts washers.
[Evaporation = $q \times 0.1$]
 - iii. **Carryout loss.** Cleaning solvent carried out by parts constitutes a big portion of total emissions. Though the amount of carryout solvent varies depending on the size and shape of the parts, we are able to estimate a carryout factor (carryout vs. evaporation) using AP-42 emission factors. According to AP-42, 4.6-2, a cold cleaner has a spray and bath evaporation emission 0.07 tons/unit/yr and a carryout emission 0.08 tons/unit/yr. $0.08/0.07 = 1.15$. We will use a carryout factor 1.2 in our PTE calculation.
[Carryout = $Evap \times 1.2$]
 - iv. **Waste solvent loss.** If the company does not recycle waste solvent, emissions for waste solvent should be included. According to AP-42, 4.6-2, a cold cleaner has working loss (evaporation & carryout) .15 tons/unit/yr and a waste solvent loss 0.18 tons/unit/yr. $0.18/0.15 = 1.2$. We will use a waste solvent factor (waste solvent vs. working loss) 1.2. [Waste = $Evap \times 1.2$]
- d. HAP is determined by multiplying the uncontrolled VOC emission by the percentage of HAP in the solvent. A typical petroleum-based low vapor pressure solvent has the following HAP content: ethylbenzene - 10%; naphthalene - 1%; xylene - 5%.
- e. Estimates for uncontrolled PM and PM₁₀ are based on measurements from *Comparison of dust emissions when using various 3M fibre discs and grinding wheels*, Flemish Institute for Technological Research, March 2016.

f. Controlled emissions are as follows:

Control Efficiency				
Source	Control	PM	PM₁₀/HAP	Source
E-16A	C-08	99.7%	0.002 grain/cfm	Manufacturers guarantee
E-18	C-09	95%	95%	APCD default
E-20	none	uncontrolled	uncontrolled	- - -

g. PM₁₀ emissions are calculated based on PM emissions before the 70% fallout factor.

7. Insignificant Activities

Equipment	Qty	PTE (ton/yr)	Regulation Basis
Cold solvent parts cleaners with secondary reservoir (U-4)	2	VOC: 0.62	Regulation 1.02, Appendix A
Direct-fired space heaters ⁶ Bay 1, 2@ 0.4 MMBtu/hr Bay 2, 6@ 0.3 MMBtu/hr Bay 3, 8@ 0.4 MMBtu/hr Shipping, 9@ 0.2 MMBtu/hr Rooftop, 1@ 0.115 MMBtu/hr Rooftop, 4@ 0.125 MMBtu/hr	30	NOx: 3.50 CO: 2.94	Regulation 1.02

1. Insignificant activities identified in District Regulation 1.02, Appendix A, may be subject to size or production rate disclosure requirements.
2. Insignificant activities identified in District Regulation 1.02, Appendix A shall comply with generally applicable requirements.
3. The owner or operator shall annually submit an updated list of insignificant activities that occurred during the preceding year, with the compliance certification due April 15th.
4. Emissions from Insignificant Activities shall be reported in conjunction with the reporting of annual emissions of the facility as required by the District.
5. The owner or operator may elect to monitor actual throughputs for each of the insignificant activities and calculate actual annual emissions, or use Potential to Emit (PTE) as the annual emissions for each piece of equipment.

⁶ These space heaters are comfort natural gas heaters, not process heaters, therefore Regulation 40 CFR 63, Subpart JJJJJ is not applicable.

6. The District has determined that no monitoring, recordkeeping, or reporting requirements apply to the insignificant activities listed, except for the equipment that has an applicable regulation and permitted under an insignificant activity (IA) unit.